

RESPONSIVENESS SUMMARY

For Proposed Amendments to the

**Rules and Regulations for the Investigation and
Remediation of Hazardous Materials Releases, as amended August 1996.**

Short Title: Remediation Regulations.

Rhode Island Department of Environmental Management
Office of Waste Management
Leo Hellested, P.E. Chief

February 2004

Date of Public Notice: 31 July 2003

Public Comment Period: Through 31 August 2003

The following parties provided written comments to the Department:

1. Donna Holden Pallister, P.E., LFR Levine Fricke
2. Timothy O'Connor, Vanasse Hangen Brustil Inc.
3. Comments provided by Naval Facilities Engineering Command, Engineering Field Activity Northeast - Correspondence signed by Al Haring, P.E. dated 13 August 2003 through Mr. Andrew J Stackpole, Environmental Program Manager, Department of Defense.
4. Comments provided by the Air Force Regional Environmental Office, Eastern Region - POC: Mr. Dave Glass – provided through Mr. Andrew J Stackpole, Environmental Program Manager, Department of Defense
5. Michael F. Geisser, PE, Alliance Environmental Group, Inc.
6. Annette M. Shipp, PhD. Environ Health Sciences Institute, Ruston, Louisiana: Comments forwarded to RI DEM through Vanasse, Hangen, Brustlin, Inc.

The full text of submitted written comments is attached (in hardcopy format only) as appendix 'A'.

Summary of comments and Department responses:

1. Donna Holden Pallister, P.E., LFR Levine Fricke

(a). The comment requested clarification of Section 12.03, that said section of the Rules would only apply at sites where an exceedance of the 7.0 mg/kg standard has occurred.

Response: With respect to arsenic, sites with all concentrations below 7.0 mg/kg are not required to report to the Department. Section 12.03 Determining Compliance with the Standard, establishes criteria and flexibility for evaluating data collected in accordance with Sections 12.02 A & B, to determine compliance with the standard when one or more of individual samples exceed 7.0 mg/kg. Site arsenic conditions meeting all the requirements of Section 12.03, shall be deemed consistent with state background levels, and hence be non-jurisdictional for arsenic. Therefore, if all concentrations found during the investigation are below 7.0 mg/kg, then the Department would not be notified and application of the provisions of Rule 12.03 would not be required.

(b). The comment requested clarification on whether DEM would require that every Site Investigation Report (SIR) include an evaluation for arsenic under Section 12.03, even if the site history does not indicate that arsenic is likely to be present. A dry cleaning site with a chlorinated solvent release was given as an example.

Response: No, not every SIR will require an evaluation of arsenic. Section 7.3 Site Investigation Scope outlines the required information to be submitted for a complete investigation of a contaminated site where a spill or release has occurred. The scope of the SIR must therefore address all known or suspected areas of contamination on site for a Letter of Compliance (LOC) to be issued at the end of the process. The consultant, in assessing the required scope of an investigation, therefore needs to consider the indiscriminant nature of many historic arsenic releases in making a determination on whether to include sampling for arsenic. Given historic farming activities, use of pesticides, filling in urban areas, and the industrial legacy of Rhode Island, DEM would anticipate a majority of SIR's including arsenic as a contaminant of concern.

If a SIR does not include an assessment for arsenic, the report should still include in the narrative why the consultant believes arsenic is not a contaminant of concern. The SIR should provide sufficient information on the site's history, so the Department can concur with the consultant's rationale. The Department may also choose to issue a No Further Action (NFA) letter, if appropriate, rather than a Letter of Compliance for the site. Issuance of the LOC is acknowledgment that a full investigation of the site has been completed to the Department's satisfaction, and all remedial issues have been completed. The NFA letter does not acknowledge that the entire site has been investigated, but rather acknowledges that appropriate actions were taken to address a more localized release (i.e.: not

the entire site). As a practical issue, the consultant may also want to consider the cost of arsenic sampling versus the cost and time of re-mobilization should it be determined later that arsenic sampling is required. A dry cleaner with a specific chlorinated solvent release, however, may represent a type of example where sampling for arsenic may not be required, based on review of other site-specific information presented in the report. Examples, therefore, may occur where the scope of an investigation is deemed adequate by the Department even though analysis of arsenic levels has not been included.

2. Timothy O'Connor, Vanasse Hangen Brustil Inc.

(a) The comment requested clarification on if the Department would consider background evaluations for arsenic that resulted in a finding greater than the Department specified criteria set out in Section 12.0

Response: Given the significant data evaluated across the state prior to proposing these regulatory revisions, the burden of proof in making a background determination for levels exceeding those specified in Section 12.0 will be very high. The 7.0 mg/kg standard represents the 95th percent upper confidence limit when natural background data across the state were statistically evaluated. Section 12.03 also provides further flexibility in determining compliance with that standard. Therefore the likelihood that naturally occurring levels of arsenic in R.I. are present above the new standard should be relatively small. The new rules also reduce the sampling requirements for determining compliance (i.e. by taking advantage of the significant data available to the Department state-wide, the sampling requirements of Section 8.06 were reduced), and provide more flexible, cost effective remedial options to address arsenic in soil when encountered above the standard. The revised requirements will also expedite the Department's approval process by significantly reducing review times and disputes previously encountered over background determinations. For that reason the Department anticipates utilizing the new provisions of the revised regulations to the maximum extent possible. The provisions of Section 8.06 Background Concentrations for Soil, however, will remain in the final promulgated regulations.

(b). The comment advised revising the proposed wording in Section 8.10 A ii, to state "No compliance sampling plan shall be accepted that causes the statistical evaluation of the results to be negatively biased." The point of the comment being that compliance sampling is biased, in the sense that the consultant should be focusing on areas suspected of impacts.

Response: The Department acknowledges the point of the comment, however, believes insertion of the word "negatively" does not clarify the section, as the word is subjective from a regulatory and legal perspective. The section is therefore being clarified to address the intent of ensuring that a bias does not

occur from inclusion of sample results in the statistical analysis that are from areas outside the originally defined source area of concern. The language has therefore been clarified to read: “No compliance sampling plan shall be accepted that includes sample results outside the former source area in ~~causes~~ the statistical evaluation of results ~~to be biased~~.”

3. Comments provided by Naval Facilities Engineering Command, Engineering Field Activity Northeast - Correspondence signed by Al Haring, P.E. dated 13 August 2003 through Mr. Andrew J Stackpole, Environmental Program Manager, Department of Defense.

(a). A general comment expressing concerns that site-specific background determinations would not be permitted in the future under the revised regulations. The concern being for cases where arsenic levels might be naturally occurring at levels above the 7.0 mg/kg standard due to unique geological formations within the state.

Response: See Department response to 2 (a) above.

(b). 1. Section 8.04 (Method 3 Remedial Objectives) – The comment raised issues with Section 8.04 of the regulations (Method 3 Remedial Objectives). The comment requested that the Department revise the regulations to allow for calculation of risk under a separate recreational end use scenario versus the more conservative residential risk model.

Response: The Department acknowledges that the regulations, as amended 1996, do not include separate provisions to evaluate a Method 3 risk assessment for specific recreational scenarios. The revised regulations as proposed, however, did not consider changing those existing provisions. The comment raises a number of points worthy of further consideration, however, they go beyond the scope of the amendments presently proposed and public noticed. Therefore, any consideration of this comment would have to be evaluated through a future public process and regulatory revisions.

(c). 2. Section 8.06, Bullet C. The comment raises issues with Section 8.06, Bullet C, which requires a minimum number of 20 samples be used by a performing party to statistically evaluate site background conditions. The comment suggests that the requirement of 20 samples is arbitrary, and that a minimum of 10 samples is required for most comparison testing such as those employed in background analyses (e.g. Wilcoxon Rank Sum, F-test, and T-test). The comment therefore recommends that the regulations be revised to “... allow for the number of background samples to be based on power analysis on a site-by-site basis instead of the number 20.”

Response: As proposed and public noticed, the minimum sampling requirements for background consistency determinations for arsenic have been reduced in Rule

12.0. This revision was justified by considering the significant number of background results evaluated by the Department statewide for arsenic. The Regulations now require a minimum of only 10 arsenic samples, with additional samples required on a sliding scale for larger sites.

With respect to background determinations for other contaminants, no further revisions were proposed to the sampling requirements of Rule 8.06. The comment acknowledges that the more samples considered, the more robust the statistical analysis. Given the lack of statewide background data for other contaminants, therefore, the Department is reluctant to reduce these existing requirements. Although the recommendation to change to a site-by-site evaluation of the minimum sampling requirements may have merit, the drawbacks would include less certainty for consultants, and potential delays in reviewing and processing reports. The Department, therefore, does not recommend going with site-specific evaluation of minimum sampling requirements for each and every site.

(d). 3. Section 12.0 - The comment raised concerns with treating arsenic background determinations differently than other contaminants, and setting the new standard at the 95% upper confidence limit. The comment suggests this may not take into consideration all variations in soil type, PH, etc. across the state. The comment also suggests that access to statewide background data for arsenic be made available to the public, and that newly collected arsenic background results be continuously added to the State database to further improve the data set.

Response: The Department involved numerous stakeholders in the public process that resulted in evaluating and revising the arsenic standard. So the data used by the Department is public information, and has been made available to all interested parties. Any newly collected background data would also be considered a public record and made available upon request.

With respect to concerns with using the 95% UCL, the Department believes that the likelihood that naturally occurring levels may be present above the new standard should be relatively small. Likewise the State acknowledged in the public debate during the process, that some sites might exist with low-level arsenic releases (that are not naturally occurring but below the new standard of 7.0 ppm), and those sites would be non-jurisdictional under the revised regulations. Given the prevalence of naturally occurring arsenic, and its historic uses, Section 12.0 of the revised Regulations provides a methodology for determining consistency with statewide arsenic background levels versus the previous requirement for making a specific background determination at every site. The Department believes that setting the new standard at the 95% UCL of statewide background data provides a pragmatic approach for balancing cases that may involve low-level releases against sites with high naturally occurring levels, for the purposes of addressing arsenic releases across the state. See also the Department response to comment 2 (a) above.

(e). 4. Section 12.02 – The comment raises issues with the minimum required number of samples required in Section 12.02 (i.e. 10 minimum for a 1 acre site), and suggests the Department evaluate each site on a case-by-case basis based on a power analysis to achieve a given significance.

Response: If arsenic is identified as a contaminant of concern at a site (see response to comment 1 (b) above), then the minimum sampling requirements specified in Section 12.02 shall be applicable for determining compliance with the standard. With respect to the number of samples required, the Department acknowledges that site-specific conditions need to be considered in that evaluation. Section 12.02 A. requires that *“The performing party shall ensure that the number, location, depth, and distribution of the arsenic samples taken as part of the site investigation are adequate to properly characterize the site, the release, and all specific areas of concern. The Site Investigation submittal shall include the rationale utilized for selecting sample locations.”* With respect to Section 12.02 B., specifying a minimum number required, the Department believes there are benefits with providing greater certainty of the requirements to the regulated community and their consultants, and staff review times should be improved by reducing potential areas of dispute. See also the response to comment 3 (c) above.

(f). 5. Section 12.02 – The comment requests clarification whether the sampling requirements specified in Section 12.02 apply to characterizing and defining the nature and extent of arsenic concentrations at a potential site in order to comply with the direct exposure criteria or if the sampling requirements are for developing a site-specific background determination.

Response: Section 12.0 of the revised Regulations provides a methodology for determining consistency with statewide arsenic background levels versus the previous requirement for making a specific background determination at every site. See also the response to comment 3 (d) above.

(g). 6. Section 12.03, 1st paragraph, last sentence: Use of the undefined term “non-jurisdictional” creates ambiguity. Recommends that the State define what is meant by use of the term “non-jurisdictional” and expressly state what is the intended effect of soils being considered “non-jurisdictional”. Since the Site Remediation regulations apply only when there has been a “release”, is it the State’s intent that “non-jurisdictional” means the arsenic in soil will be considered background and not from a “release” and therefore the regulations do not apply?

Response: As stated above, Section 12.0 of the revised Regulations provides a methodology for determining consistency with statewide arsenic background levels. This alternative methodology for arsenic is what is being used to establish the new standard, which is being set at the 95% UCL (i.e. 7.0 ppm - subject to flexibility included in Section 12.03), for when remedial action will be required.

The State acknowledges that some sites might exist with low-level arsenic releases that are not naturally occurring but still below the new standard of 7.0 ppm. These sites, where arsenic conditions have been appropriately determined to comply with the requirements of Section 12.03, will not require further action under the authority of these regulations. Sites complying with the new standard will therefore be “non-jurisdiction”. Creation of a separate regulatory definition of the term “non-jurisdictional”, different from the common and legally understood definition, is therefore not required.

(h). 7. Section 12.03. The proposed regulation requires arsenic to be evaluated by a straight comparison of the mean and the maximum to the 95% UCLM from the statewide database. A comparison of this nature is quite simple and not as statistically significant as conducting statistical analyses comparing the two data sets. It is suggested that the option for conducting more robust statistic analyses be permitted in lieu of the straight comparisons in the proposed revisions.

Response: The proposed requirements of Section 12.0 have been developed to take advantage of the large data set of background arsenic results taken across the state. The Department believes the proposed approach will simplify the regulatory requirements with respect to addressing arsenic, provide greater certainty to the regulated community, and will create a more efficient and predictable review process. See also response to comment 2 (a) above.

(i). 8. Section 12.03. The comment requests clarification for using the value 15 ppm as the upper limit of any individual sample result in the data set when determining compliance with the standard per Section 12.03.

Response: When data from the 2 background studies was reviewed, the maximum value found for any individual sample result in the State was 15 ppm. The requirements of Section 12.03 were developed to allow some flexibility for evaluating site-specific data against the standard, and permit a limited number of results to exceed 7.0 ppm. If individual sample results at a site are found to exceed 15 ppm, indications are that it would indicate a source area that would require further investigation and/or remediation.

(j). 9. Section 12.04: If sample results show an average concentration below 7.0 ppm, but individual results exceed 7.0 ppm, is a Notification of Release still required per 5.01? Per 4.02, Notification would still appear to be required, although it is not clear this is what the State of Rhode Island intended. Clarification is requested.

Response: The intent of Section 12.0 Special Requirements for Managing Arsenic in Soil, is to require remedial action when arsenic levels exceed the new standard, as determined by the requirements of Section 12.03. Therefore, provided adequate sampling has been conducted in accordance with Section 12.02, only those sites that exceed the new standard are required to notify the

Department. Sites with arsenic conditions meeting all the requirements of Section 12.03 are non-jurisdictional.

(k). 10. Section 12.04: Use of the term “jurisdictional” creates ambiguity. The State of Rhode Island should define what is meant by use of the term “jurisdictional” and should expressly state what is the intended effect of soils being considered “jurisdictional”.

Response: The Department does not believe creation of a separate regulatory definition of the term “jurisdictional”, different from the common and legally understood definition, is required. Use of the term “jurisdictional”, with respect to soils, means that authority shall exist under the regulations to govern activities associated with those soils. See also the response to comment 3 (g) above.

(l). 11. Section 12.04: If sample results show an average concentration over 7ppm but below 15 ppm, is Notification of Release required per 5.01? This has not been clearly expressed in the proposed regulation.

Response: Yes, notification will be required. Based on the information above, compliance with the standard, per the requirements of Section 12.03, has not been met.

(m). 12. Section 12.04: Bullets A and B: The comment recommends that an additional alternative be added to allow for a site specific evaluation to determine if naturally-occurring arsenic levels exceed the stated limits in the proposed regulation.

Response: See the response to comment 2 (a) above.

(n). 12. Section 12.04 Bullet B: The comment suggests that the proposed regulations is unclear as to whether the 15ppm is intended to be for any individual sample result or for the average of all sample results. When considering the wording of 12.04 A., it appears the State intends this to be an average of all sample results.

Response: Section 12.04 B. outlines several pre-approved remedial options for situations that exceed the criteria of Section 12.04 A. The source area requirements for Section 12.04 A. state “*Average source area arsenic levels between 7 and 15 ppm as the only contaminant of concern, with no individual sample result from the data set greater than 15 ppm.*” Therefore the remedial options outlined in Section 12.04 B. become applicable when any individual result from the data set of the source area is above 15 ppm.

(o). The comment states: “13. Table 1. Page 36. This table provides the proposed leachability standards. The arsenic leachability criterion is proposed as 7.0 for both the residential and industrial scenarios based on the statewide general arsenic background database. Based on the variance of arsenic across the state (Shacklette 1984), the leachability criteria should instead be decided on a site-by-site basis using more site-specific background data.”

Response: For clarification, Table 1 on page 36 of the redline/strikeout version of the proposed regulations lists the Department's Direct Exposure Criteria, and not the leachability standards. In Table 1, the Department is proposing to revise both the Residential and Industrial/Commercial criteria for arsenic, to a new standard of 7.0 ppm. Based on the background data evaluated by DEM across the state, and the feedback received from numerous stakeholders during public debate on the issue, the Department believes that setting the new standard at the 95% UCL of statewide background data provides a pragmatic approach for balancing cases that may involve low-level releases against sites with high naturally occurring levels, for the purposes of addressing arsenic releases across the state. See also the Department responses to comments 2 (a), and 3 (d) above. The Department's Leachability Criteria is listed in Table 2 of the regulations. No revisions to Table 2 are proposed in these amendments with respect to arsenic.

4. Comments provided by the Air Force Regional Environmental Office, Eastern Region - POC: Mr. Dave Glass – provided through Mr. Andrew J Stackpole, Environmental Program Manager, Department of Defense

The comment raises concerns with respect to Rhode Island imposing state specific engineering licensure requirements on officers and employees of the Federal Government. A number of court cases are cited in the comment as Judicial support for the position regarding the Constitutional axiom that a state's laws and regulations cannot control the performance of the official duties by officers and employees of the United States. The primary, and specific concern cited in the comment is with the wording of the "PE Certification Requirements" under Appendix H of the proposed regulations. The comment suggests adding the following wording to the Certification to address the issue,

"Whereas, the evaluation of the analytical results was performed by _____, a Professional Engineer registered in the State of Rhode Island *(or for members of the armed forces or employees of the government of the United States, a Professional Engineer registered in _____)*, hereby"

Response: The Department acknowledges the argument presented in the comment, and understands the importance of determining the scope of the Federal government's rights of sovereign immunity with respect to individual state certification requirements. The Department also appreciates the burden on Federal employees, particularly members of the armed forces who frequently move interstate, with complying with individual state certification requirements. With respect to the specific concern cited in the comment, however, with the wording of Appendix H, the Department believes the issue may be irrelevant.

Appendix H is a release form to be recorded on a property title, where a previously approved remedy involved a recorded Environmental Land Usage

Restriction (ELUR) on the property title that is no longer applicable. The proposed rule, Section 12.05 Certification Requirements for Sites Formerly Jurisdictional, allows a property owner of a site formerly jurisdictional under the Regulations, as amended in 1996, to record the Appendix H release form if the site is certified in compliance with Section 12.03 of the new regulations. This provision will therefore pertain to sites with arsenic levels between the previous residential standard of 1.7 ppm, and the new standard 7.0 ppm. To the Department's knowledge, no site owned by the federal government in the state, has an approved remedy involving an ELUR recorded on the title, which would warrant use of the Appendix H release form. This is in part due to sovereign immunity issues restricting the use of such institutional controls on federal properties. Therefore, revision of the currently proposed language appears unnecessary. Should a circumstance arise contrary to the Department's current understanding, however, the State would willingly revisit the issue to ensure consistency with past judicial precedents, and make accommodations accordingly to any federal official meeting the appropriate criteria.

5. Michael F. Geisser, PE, Alliance Environmental Group, Inc.

- (a). Pg. 72 – 12.03 Note should read “method reporting limit”, not “laboratory detection limit”.

Response: A detection limit, or method detection limit (MDL) is defined in EPA guidance as the minimum concentration of a substance that can be reported with 99% confidence that the analyte concentration is greater than zero (40 CFR 136 Appendix B). The reporting limit, or method reporting limit (MRL), is the lowest value reported by the laboratory without a “J” flag or qualifier. Laboratories may also often define the reporting limit as the Practical quantitation limit (PQL), which is the lowest concentration of an analyte that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions (50FR 469906). The wording of the note in Section 12.03 has therefore been revised to account for these differences.

- (b). Pg. 97 – ELUR language - A number of proposed revisions were submitted with respect to the Environmental Land Usage Restriction (ELUR) language proposed in the revised regulations, and Appendix H. A copy of the full redline/strikeout text of the submitted comment is contained in Appendix A of this Responsiveness Summary, and includes the specific proposed wording changes.

Response: The Department has reviewed submitted recommendations to the proposed “boiler plate” ELUR contained in Appendix G of the regulations, as well as Appendix H. Although not every recommended wording change has been adopted, the Department has revised the final ELUR and Appendix H with several recommended changes incorporated. The final proposed regulations and ELUR text are as filed.

6. Annette M. Shipp, PhD. Environ Health Sciences Institute, Ruston, Louisiana
(Comments forwarded to RI DEM through Vanasse, Hangen, Brustlin, Inc.)

In response to the request for comments on the proposed revisions to the Remediation Regulations, as amended 1996, Environ reviewed a number of the Department's existing Method 1 criteria as specified in the Rules. Particular chemical constituents were of specific concern to Environ, and a technical argument was presented in the comment to justify raising certain existing standards. Table 1 of the comment proposed the Department adopt revised standards for Beryllium, Chromium (IV), Lead, 1,1-Biphenyl, Acenaphthene, Acenaphthylene, Anthracene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene[C], Chrysene[C], Fluoranthene, Fluorene, Naphthalene, Phenanthrene, Pyrene, and Total Cyanide. The comment also suggested that the Department not limit a re-evaluation of current standards to the constituents listed in Table 1, but also review the basis used for other existing Method 1 standards.

Response: The Department has reviewed the submittal presented by Environ regarding the risk assessment assumptions used to establish certain Method 1 criteria. The primary focus of these proposed revisions to the Remediation Regulations, however, has been a review of the arsenic standard for direct exposure, and an assessment of background conditions for arsenic across the State. Arsenic was not, however, one of the chemical constituents evaluated in the Environ comment. Numerous public meetings have been held by the Department to discuss the background arsenic issue, which has involved a broad range of stakeholders from both the public and private sectors. The suggested revisions in the comment, therefore, go beyond the scope of the currently proposed revisions as public noticed and debated. Any consideration of additional changes in Department standards would require a separate new proposed regulatory change with associated public involvement per R.I. statute.